Schur multipliers and positive extensions

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The positive completion problem for a partially defined matrix asks when the unspecified entries can be determined in such a way that the resulting fully defined matrix is positive semi-definite. The problem has attracted a considerable attention in the literature, and had been studied using combinatorial approaches, until Paulsen, Power and Smith observed in the late 1980's that it is closely related to completely positive maps and operator systems.

In this talk, after presenting an overview of the classical problem, I will discuss an infinite dimensional and continuous setting, where finite matrices are replaced by measurable Schur multipliers. I will first introduce scalar-valued and operator-valued Schur multipliers and their partially defined versions, and present a Grothendieck-type characterisation of operator-valued Schur multipliers. Then I will talk about the positive extension problem of Schur multipliers and characterise its affirmative solution in terms of structures on an operator system associated with the domain of the Schur multipliers.

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You can join the event via this link:
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